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Innovations in Workforce Training Programs in Ghana: Using Pay for Performance Contracts

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1 EXECUTIVE SUMMARY

The Technical and Vocational Education and Training (TVET) has the potential to serve Ghana's urban working population by bridging the skills gap and help improve the productivity and diversify the economy. However, the current TVET system has faced many challenges, including insufficient funding and lack of measurable outcomes to align the incentives in the system, a theme that is consistent in both literature review and our own interviews and analysis.

In our empirical analysis based on household survey data, we used public schools as a proxy for better funding, and certificates as a form of measurable training outcome. Our result shows that among wage earners, those who graduated from better funded TVET providers (i.e., public schools) earn 58% more than those from less well-funded schools, controlling for other variables. More importantly, among all TVET graduates working in the formal sectors (i.e., as wage-earners), those who possess well-recognized TVET certificates¹ earn 94% more than those who don't have any certificates, while the difference is 58% in informal sectors (i.e., as self-employed).

We therefore recommend that the Skill Development Fund (SDF) condition its grants on a set of measurable training outcomes, such as certificates obtained by trainees, which will help improve the current evaluation and disbursement process, where grant decisions are made based on limited ex-ante information and grantees are not held accountable for the actual results.

In our package of recommendations, we advocate for better outreach and transparency, introducing plain vanilla pay for success contracting in the short term, and involving socially-minded investors (i.e., the social impact bond model) in the long term. We believe that such gradual improvement would help the SDF better achieve its mission of building capacity in the TVET sector, and instill greater accountability in the system while addressing the SDF's immediate challenges in disbursing the grants to the most eligible in a timely manner.

¹ NVTI and City & Guilds

2 INTRODUCTION

2.1 Ghana's Challenges

From 1990 to 2010, Ghana has enjoyed strong economic performance, with GDP growing at 5.1% on average.² As of 2011, Ghana has a GDP per capita of \$3,200,³ which placed Ghana among lower middle income countries, a rare achievement in the Sub-Saharan context. Ghana is also blessed with a relatively young and healthy population, with 11.7 million work force, and 39% of the population aged 0-14.⁴

Despite the strong performance, Ghana's economy is faced with the following challenges:

First, Ghana has relied heavily on commodity exports, with 70% of its exports concentrated in traditional commodities such as cocoa, gold and timber, (World Bank, 2009, pg. III) and the recent recovery in oil and gas may exacerbate the problem. (World Bank, 2011, pg. 1) Mining (including oil)'s share of GDP jumped from 2.8% in 2007 to 8.5% in 2011, and crude oil contributed to almost the entire incremental amount. On the other hand, manufacturing's share of GDP has been declining, from an already moderate size of 9.1% in 2007 to a flagging 6.7% in 2011, leading to the potential of Dutch diseases. (Appendix Table 2)

Second, despite the commodity boom, labor forces are concentrated in low-productivity industries. As shown in Appendix Table 3, in year 2005 the agriculture sector employed over half of the labor force in the country although it only contributed to a third of the GDP. Trading and community & other services employed 18.6% and 9.2% of labor respectively, although these two sectors are largely informal non-agriculture activities. On the other hand, more productive sectors such as utilities and mining only absorbed a combined 1% of labor.

Third, work force is concentrated in the informal economy. Drastic privatization reforms in the past three decades led to significant job loss in the public sector, while trade liberalizations and large depreciation of Ghana's currency contributed to the demise of many import-dependent businesses and formal private sector jobs. (Baah-Boateng, 2004, pg. 5) As of 2010, formal sector (public and private combined) only employed about 14% of the workforce in Ghana. (See Table 2.1 for details)

² World Bank. "Data", <http://data.worldbank.org/country/ghana>, accessed Feb 1, 2013.

³ CIA, "The World Factbook".

⁴ Ibid.

Table 2.1 - Employment by Sector in Ghana in 2010 (Population Aged 15-64 Years)

	Number	Percentage
Public	641,633	7%
Private Formal	708,043	7%
Private Informal	8,364,649	86%
Semi-Public / Parastatal	13,750	0%
NGO	49,894	1%
Other International Organization	4,686	0%
Total	9,782,655	100%

Source: Author's calculation based on Ghana Statistical Services, "Employment sector of employed persons 15-64 years by region and district, 2010", http://www.statsghana.gov.gh/docfiles/employ_15_64_reg_dist_2010.pdf

Fourth, there is significant youth unemployment and under-employment, especially among women and those with low level of education. Around 60 percent of the unemployed in Ghana are youth aged 15-24, and unemployment rate among young people is close to 20 percent. (Amankran 2012, pg. 2) Youth unemployment is particularly severe in urban Accra area (at near 30 percent), and women experience higher unemployment than men. (Amankran 2012, pg. 2) The majority of the unemployed youth have education levels below the tertiary level: 21.6% of the unemployed youth are illiterate, and 65.8% have only completed various stages of formal education at the below-tertiary level. (Appendix Table 4)

Moreover, underemployment in Ghana, particularly among women is pervasive, largely as a result of women's relatively low educational attainment, their commitment to domestic work, as well as their predominate role in unpaid agricultural or informal sector. (Baah-Boateng, 2004, pg. 7)

2.2 Why TVET Could Help

As with any problem of large informal economy and high youth unemployment, it could be either due to insufficient employment opportunities in the economy, or insufficient number of skilled or qualified workers available for companies to hire (i.e., skills gap). Based on the following evidence, we believe that the skill gap is a significant contributor to the problem.

1. Evidence #1: there are a number of expatriates working in certain high productivity sectors. For example, in oil & gas sector, a significant number of the highly specialized and high paying jobs are being undertaken by non-Ghanaians. (AfDB, 2012, pg. 9)

2. Evidence #2: in the Current Skills Gaps Rapid Survey conducted by Ghana Employers' Association in 2006, among top reasons for hard-to-fill vacancies, "lack of technical and practical skills" ranked the highest, with 80% of the respondents identifying it as a reason. (World Bank, 2011)
3. Evidence #3: around 60% of the participants in a survey indicated they either don't have the right skill for the desired job, or wish to take further training or education, while 25.7% of unemployed youth directly expressed the interest of continuing education. (Appendix Table 5)
4. Evidence #4: from our interviews of employers, they frequently complained about low quality of the TVET training. New recruits with technical training and degrees could not even perform simple tasks, and have to go through re-training, which is very costly for the employers.

Based on the above evidence, we believe that a key policy intervention should be to bridge the skills gap via workforce training. Improved labor productivity from workforce training has the potential to lower the large concentration of workforce in the informal sector, reduce overall unemployment, improve wages and therefore living standards, and diversify the economy from its current heavy reliance on commodities.

Although the TVET has the potential to address the skills gap, we believe that the current TVET system in Ghana is faced with various challenges, as we will detail in Section 5. We will further argue in Sections 6-9 that we can improve the current policy intervention, by introducing pay for performance contracts.

3 LITERATURE REVIEW ON THE EFFECTIVENESS OF TVET TRAINING

In this section, we examine whether the TVET training has been proven to be effective, in terms of improved outcome (such as increase in wages, employability or productivity).

3.1 Program Effectiveness in Other Countries

Most of the existing evaluation on the effectiveness of training program is derived from programs in the developed world, while the evidence in developing countries is relatively limited. (Ibarraran and Rosas, 2008, pg. 9) Our own literature review, which also includes more recent

literatures, has confirmed this point. Rigorous evaluations, such as randomized control trials, are especially rare in developing countries.

In the developed markets, only a few studies have positive results. For example, a national training program targeted at disadvantaged youth in the US, which provide general education, social skills, parenting and health education, vocational training, and job placement services have found positive outcomes, (JPAL, 2012, pgs. 88-89) and a study in Denmark shows that while the programs by themselves were not effective, the threat of having to participate in Active Labor Market Programs led to lower unemployment. (Rosholm, 2008, pg. 2)

Compared to developed countries, training programs for youth in developing countries seem to have a more positive impact. (Tripney et al., 2012, pg. 8)

One recent study found that among disadvantaged youth in Colombia, “women offered training earn 19.6 percent more and have a 0.068 higher probability of paid employment than those not offered training, mainly in formal-sector jobs,” and the program generates much larger net gains than those found in developed countries. (Attanasio et al., 2011, pg. 1) However, two other studies in Dominican Republic and Panama only had modest or statistically insignificant results.

One explanation given on the general failure of training programs is that most studies do not consider the significant differences across training programs. (JPAL, 2012, pg 90) We should therefore be mindful of the external validity of these evaluations, as training programs in different countries that target at different sectors provided by different training providers could have very different outcomes, and a failure of one program in another country does not predict the success or failure of a program in Ghana.

3.2 Program Effectiveness in Ghana

The evidence on the effectiveness of TVET training programs in Ghana, though limited, has been more encouraging. On the macro level (i.e., by looking at returns to education), a recent World Bank study on job creation and skill development in Ghana, by performing regression analysis on data from Ghana Living Standard Survey Round 5 (GLSS 5), found strong evidence on increased employability and earnings associated with TVET education. (World Bank, 2009, pg. 1) Specifically, TVET raised the likelihood of holding wage employment, and the magnitude is even larger than those with a senior secondary education. Among wage workers, TVET also raised income, having a

magnitude that compared favorably with senior secondary education. (World Bank, 2009, pgs. 95 & 97) This is a quite remarkable, considering that among all junior high school graduates, only those who are academically strong can proceed to senior secondary schools.

On the micro level (i.e., by looking at specific projects), the evidence is limited. While donor-funded projects such as the World Bank's Vocational Skills and Informal Sector Support Project (VSP) and IFAD's Rural Enterprise Projects have been evaluated, government-funded projects such as ICCES (Integrated Community Centre for Employable Skills), STEP (Skills Training and Employment Placement) have not been evaluated. (Palmer, 2007, pgs. 21-22) The World Bank's VSP project, which was carried out in 1995-2001 and aimed to upgrade the skills of master craftsman and apprentices, had some modest successes. For example, apprentices experienced improved ability to read technical designs, better finished products, improved employment prospects, and enhanced self-esteem; while master craftsman reported improvements in their technical efficiency and productivity. (Palmer, 2007) However, the evaluation was not done in a rigorous manner, and the overall project was graded as "unsatisfactory" by the World Bank. (World Bank 2001, pg. 5)

3.3 Possible Determinants

Some evidence points to the relative effectiveness of one format of TVET training versus another, though the result is generally mixed. For example, training programs could be class-room based, on-the-job, or a mixture of both. While on-the-job training (or internship) is often thought to be more effective than classroom-based training, the rule is not true universally. (Card et al. 2011, pg. 269) For example, the successful program in Colombia – one of the very few programs with positive results under rigorous evaluation has the format of three months of in-classroom training and three months of on-the-job training in the form of unpaid internship. (Attanasio et al., 2011, pg. 2) However, the programs in Dominican Republic and Panama, which only have modest or statistically insignificant results, have similar designs. (Card et al. 2011, pg. 273)

We have not found empirical evidence on what types of TVET programs work well in Ghana.

3.4 Summary

In summary, the evidence is quite mixed. Rigorous studies conducted on different training programs elsewhere often do not find positive outcomes associated with the training, and it's also difficult to determine what type of training has better outcomes than others. In the Ghanaian context, while return to TVET education has been positive and significant, there is limited evidence at individual training project level. This means that at the outset, it would be very challenging for outsiders to determine what type of training programs are likely to succeed, and allocate resources based on the perceived likelihood of success would not be easy.

4 OVERVIEW OF GHANA'S TVET SYSTEM

Ghana's education system consists of primary, secondary and tertiary education. Basic education, which includes 6 years of primary school plus 3 years of junior secondary school (JSS), is compulsory and free⁵.

In Ghana, total student enrolment is 1,285,000 at the junior secondary level, 490,000 at the senior secondary level, and 121,000 at the tertiary level. (Baffour-Awuah and Thompson, 2011, pg. 25) Therefore, about two thirds of the graduates of junior or senior secondary schools are unable to progress into higher level of education, and a small portion of those who do not make it to the next level go on to TVET training, which has a total enrolment of 67,000. (See Appendix Figure 1 for details)

Based on Ghana living standard survey, while some graduates of TVET will go on to pursue higher education, the majority will join the workforce directly; and while some TVET graduates are able to obtain a job in the formal sector, most will end up in the informal sector.

As part of the latest education reform, The Council for Technical and Vocational Education and Training (COTVET) was established in 2006, with the mandate to formulate national policies for skill development, coordinate and supervise TVET training, and provide funding support. (Baffour-Awuah and Thompson, 2011, pg. 20)

There are two types of TVET providers: public and private institutions:⁶

⁵ "Brief History of Education in Ghana", (<http://www.tobeworldwide.org/index.php/component/rsfiles/view?path=General/history.pdf>), accessed on Feb 1, 2013.mn

1. Public institutions are associated with different ministries, and most of them are affiliated with either the Ministry of Education (MOE) and the Ministry of Employment and Social Welfare (MOESW). Public institutions receive government funding, which covers infrastructure and teachers' salaries. A complete list of public training institutions is included in Appendix Table 6.
2. Private TVET providers can be further broken down to private for-profit, private not-for-profit and informal sector associations:
 - a. Private for-profit providers: The quality of teaching varies significantly. Government funding is very limited, and all operating expenses have to be recovered from students, resulting in higher tuition compared to public institutions. Based on our interviews, while private institutions tend to have curriculums that are more flexible and closer linked to industry demand, many of them lack the basic equipment to conduct quality training.
 - b. Private non-for-profit providers: A study on such training centers concluded that their curriculum was designed for wage-employment rather than self-employment, and they suffer from problems such as insufficient attention to new skills, long duration and ineffective delivery. (Amankrah 2001 as quoted in Haan 2002, pg. 32)
 - c. Informal sector associations have courses directly linked to specific trade. These trainings usually take the format of apprenticeship where the associations set the guidelines for course length and fees. Trainees are encouraged to complete either NVTI certification, or for more influential associations, certification awarded by these associations themselves. (Haan 2002, pg. 34)

As of 2011, there are about 200 public TVET providers and about 430 private providers. (Baffour-Awuah and Thompson, 2011, pg. 25) Based on the TVET survey conducted in 2011, which covered 306 of the 700 TVET institutions, public schools on average have 311 students per school, versus 173 for private institutions. Compared to private schools, public schools have a better student to teacher ratio, and a higher percentage of teachers with teaching qualifications. Based on our interviews, private institutions are often viewed as less prestigious compared to public ones.

⁶ The classification and the subsequent description of public, private for-profit, private not-for-profit, and sector associations providers are largely based on conversations with Dr. Baffour-Awuah in Jan 2013.

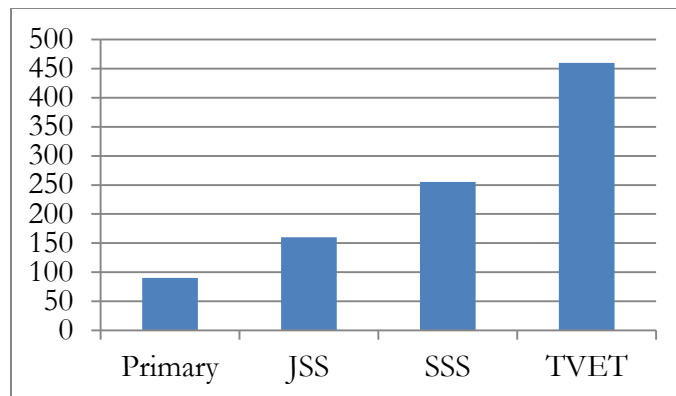
5 PROBLEMS WITH GHANA'S TVET SYSTEM

With the information we collected from literature review and interviews with TVET providers, participants, employers, and the COTVET, the following areas are believed to have hindered TVET from better serving the demand of the students and the industry, and there is consistency between existing literature and our interviews.

5.1 Lack of Funding

TVET programs are very costly on a per-student basis compared to JSS and SSS both in Ghana and internationally, due to higher equipment needs. (World Bank, 2009, pg 66-67)

Figure 5.1 Unit Cost of Education in Ghana in 2006 (Cedi)



Source: World Bank, 2009, pg 67. Old cedis were converted to new cedis based on a conversion rate of 10000:1

Despite a higher unit cost, TVET sector in Ghana is only allocated with about 1.5 percent of MoE's educational budget in the past few years. (Appendix Table 7) This is already based on a relatively low budget allocation to education in general, as Ghana spends only about 2.8% of its GDP on education. (Haans 2011, pg 31)

Due to insufficient funding, fewer than 30 percent of the TVET institutes are adequately equipped, while other programs suffer from various degrees of insufficiency in infrastructure, equipment, staffing and funding. (Baffour-Awuah and Thompson 2011, pg 26) All TVET providers we interviewed, most of which are leading institutions in their respective fields, have expressed the urgent need to upgrade their facilities and teaching materials.

Based on our interviews, private institutions generally face much larger funding constraints and occasionally run out of cash. Although in theory private institutions may also have access to some government funding (such as Skill Development Fund), the requirements are quite stringent and outcomes are unpredictable. Furthermore, private non-profit institutions do not have access to bank loans, as their credit risk is considered high due to the unpredictability of donor funding, and although private for-profit are able to borrow short term loans, the interest rate is prohibitively high.

5.2 Lack of Outcome Measurement and Lack of Incentives to Perform

Most training providers we spoke to did not track training outcomes rigorously, and the COTVET does not evaluate employment and wage outcome of the TVET graduates either. While the management of training centers may have intuitive idea about the quality of their training, no data on employment outcome of the students are available to either the regulator, or prospective students that need to choose between different schools. This in turn, has reduced the incentive for a training provider to deliver good training results, especially for public ones, whose funding are based on student headcount.

Further, training outcome of the students are not linked with teachers' compensation, which is mostly determined by their level of education and seniority. Teachers' evaluations are mostly done by supervisors considering factors such as attendance record, peer review and self-assessment. Teaching innovation, curriculum design, and industry outreach are mostly done at the school level or in collaboration with the government, and teachers are not rewarded for bringing teaching innovations, actively incorporating practical skills, or introducing employment opportunities.

5.3 Mismatch between Supply and Demand

A common theme from our conversations with employers is that TVET training are too theoretical and TVET graduates lack the capability to work with modern technology. For example, the finance manager of a large rice farm found it difficult to hire an accountant who knows Excel, and had to find college students to do the job even though the task is relatively simple. A manager of a consumer electronics service company told us that skills taught at the technical school they partner with were not advanced enough to cover today's technology, and new recruits had to go through a two month training on working with flat screen TV. A production manager at a waste

compost company decided to only recruit from Polytechnics for technical positions, and use TVET graduates as factory hands. In the meantime, many TVET graduates left school jobless or join the informal sector in an area not directly related to their field of study. According to the principal of a prestigious TVET, 20 percent students are jobless at the time of graduation, which is already a better record compared to other less selective institutions.

5.4 Limited Enrolment and Social Stigma

Among total educated labor force in Ghana only 1.6% has TVET qualification, and often times JSS graduates choose to go to SSS even though their talents are better suited for TVET. (Baffour Awuah and Thompson 2011, pg 26) There is social stigma associated with students who join TVET immediately after the JSS, as they are considered as school drop-outs. (Aryeetey et al, 2011, pg 6) Our conversation with government officials and school administrators also reveal that as most participants in the TVET program end up in the informal sector, these programs are also associated with negative connotations of those economic activities.

6 FACTORS ASSOCIATED WITH SUCCESS - EMPIRICAL ANALYSIS

From our interviews with different stakeholders and the literature review, several factors including the adequacy of funding, measurable outcomes and incentives to perform, seem to predict the likely success of TVET providers and programs, measured in terms of TVET graduates' income after training. In this section, we seek to have more concrete evidence on the funding issue from analyzing two sets of comprehensive household survey data. We also seek to establish good measurement matrices for training outcomes that are objective and relevant. Such measurable outcome could be used to evaluate training providers and help align incentives.

6.1 Data

Data on the outcome of TVET training in Ghana is limited. Ideally, we would love to conduct an analysis on TVET institutions in Ghana to explore how characteristics of individual TVET institutions (for example, target industry, level of funding, teachers' qualifications and

compensations, and infrastructure, etc.) are linked to training outcomes for students. However, the data on individual school level is not available.

The most recent TVET survey (2010/2011), which covered 306 out of the 700 TVET institutions, only has data at the aggregate level. These data includes number of TVET institutions, number of students, number of teachers, status of infrastructure, and capacity to absorb the pipeline of junior secondary school students. The only breakdowns available are by the type of TVET institutions (whether public or private), gender, and geographies. However, no data on training results or funding sources are available from the survey.

Some individual TVET institutions have attempted to track the employment of their students. For example, NVTI is undergoing a study on training outcomes for all centers affiliated with it. Networks such as Vocational Training for Females are also trying to track the training outcomes for TVETs within its network. However, these data are not suitable for analysis due to the small number of institutions involved.

Fortunately, existing household survey data, both from the Ghana Living Standard Survey (GLSS) and Ghana and Tanzanian Urban Household Panel Survey (UHP) allow us to develop some meaningful insights on the landscape of TVET education, and factors likely associated with training success. Conducted by ILO, GLSS is considered as unreliable and widely used data⁷.

While we can use GLSS data to gain basic understanding of Ghana's TVET sector, UHP provides data for our core analysis as it contains more detailed information on the individuals. The UHP was conducted under the collaboration between the Centre for the Study of African Economies (CSAE) at Oxford University and Ghana Statistical Office (GSO) for the period of 2004 to 2006. The survey collects information on social and demographic information of the individual and household including their education and income for people aged 15 to 60 residing in urban areas.

UHP data provides a variety of information on the individual who has participated in the TVET training. In addition to basic demographic information of the individual, the UHP data also has a dedicated section for accessing the individual's literacy skills, including English verbal, numerical, and raven tests, which help isolate personal aptitude from the quality of TVET training.⁸

⁷ According to Professor Baah-Boateng

⁸ The background information of the data is based on the data overview published on the CSAE website. <http://www.csaе.ox.ac.uk/datasets/Ghana-Tanz-UHPS/default.html>, accessed on Feb 2, 2013.

The survey also distinguishes between those who participate in wage earning jobs and those who are self-employed. For wage earners, UHP used self-reported wages as income, and for the self-employed, UHP used self-reported profits as income.

The drawback with both the GLSS and UHP data is that both data sets were collected around 2005. However, these are the latest data available.

6.2 Adequacy of Funding as a Predictor

As the household survey data does not contain information on the funding profile, or infrastructure of the TVET provider that trainees attended, we need to find a proxy for the adequacy of funding.

We noticed that while lack of funding is a serious issue for the TVET sector in Ghana, public institutions have the natural advantage of being subsidized directly by the government, which allow them to have better funding, leading to better infrastructure and more faculty members with qualifications. Therefore, public school could be used as a proxy for sufficient funding.

Due to better funding, compared to private TVET institutions, public TVET institutions generally have lower student-to-teacher ratio, and higher percentage of teachers with qualifications. For example, in 2011, public school has a 16x student-to-teacher ratio, while private school has a 20x student-to-teacher ratio; 64.4% of teachers in public school have teaching qualifications, compared with only 54.1% for private schools, although both types of schools have similar level of teachers with technical qualifications (84.1% for public school, versus 84.6% for private school).

Presence of public funding also allows public school to have better infrastructure compared to private schools in general. For example, while 98.4% of public schools have walls and 96.9% have floors, the same ratios are 56.6% and 55.2% for private ones, respectively.

Table 6.1 – Comparison between Public and Private TVET Institutions

	Public	Private	Total
<u>Students</u>			
Number of Students	42,541	29,307	71,848
Full Time	37,301	27,177	64,478
Part Time	5,240	2,130	7,370

Number of Institutions	137	169	306
Students Per Institution	311	173	

Teachers

Total Number of Teachers	2,723	1,443	4,166
Total Number of Students	42,541	29,307	71,848
Student / Teacher Ratio	15.6x	20.3x	
Full Time Student / Teacher Ratio	13.7x	18.8x	
Number of Teachers with Teaching Qualification	1,754	781	
As percentage of total teacher	64.4%	54.1%	
Number of Teachers with Technical Qualification	2,289	1,221	
As percentage of total teacher	84.1%	84.6%	

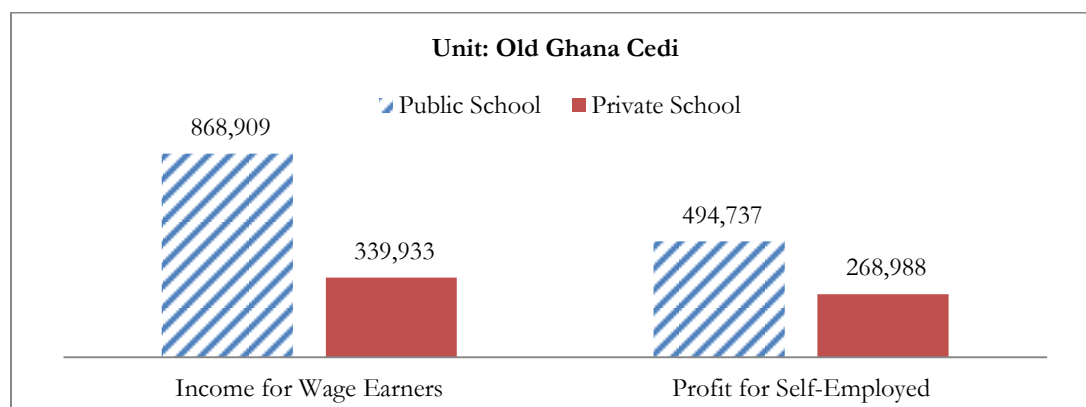
Infrastructure

Classroom			
% with Walls Made of Mud, Zinc, or Wood	98.4%	56.6%	
(%) Floors Made of Earth or Wood	96.9%	55.2%	

Source: author's calculation based on EMIS (2011): Report on Basic Statistics and Planning Parameters for Technical and Vocational Education in Ghana 2010/2011

An interesting observation from our qualitative research is the quality gap between public and private institutions, and differences in students' wages. Based on Figure 6.1, graduates from public TVET schools earn 2~3 times as much compared to those who graduate from private TVET institutions. These stylized facts using a simple comparison between public and private schools motivate us to analyze the impact of adequacy of funding/infrastructure (using public school as proxy) on training outcomes in section 6.4 and 6.5.

Figure 6.1: Different Earning Outcomes for Public and Private TVET Graduates



Source: Author's calculation based on data from UHP

6.3 Measurable Outcomes as a Predictor

Another factor associated with TVET graduates' income is measurable training outcomes. Currently there is no nationwide tracker for the outcome of TVET of any kind. There are many ways training outcomes could be measured, including employability, productivity, or income. Ideally we would like to use those direct measures, but in the Ghanaian context it may not be easy to audit such data in case we need to design a contract around it.

Standardized certification programs in Ghana provide a good indirect indication of training outcomes. The formal certification processes administered by the NVTI and City & Guilds represented the most recognized standard. By obtaining the official certificates for a particular skill, trainees demonstrate to the employers their ability to meet a satisfactory competency level to perform the required skills. Hence the ability to obtain TVET certifications could be a good indicator of higher income, and we learnt from interviews that certification is a ticket for the TVET graduates to enter the formal economy, which pays a wage premium versus informal sectors.

We have not seen existing literature on this front in Ghana, and therefore we are testing the hypothesis that obtaining a professional certification alone will enhance TVET training outcome (defined as TVET graduates' income) in Ghana.

6.4 Methodology and Limitations

In Section 6.2 and 6.3, we hypothesized that the adequacy of funding (which we use public school as a proxy), and measurable training outcomes are factors associated with the eventual success of training, measured by the income of TVET graduates.

In order to come to this conclusion we carefully control the confounding factors that could contribute to the income difference. These factors belong to two broad categories:

1. Basic demographic attributes of the individual: gender, region, union status, whether the individual works in public sector, and age / age-square as a proxy for experience. These are largely the same variables used in a World Bank study. (World Bank, 2009)

2. Literacy level and personal aptitude of the individual: years of education up until the time of interview, and aptitude assessment in the areas of verbal, numerical and raven competencies. These variables were not included in the World Bank study.

Our two variables of interests are 1) a dummy variable for whether the individual's TVET institution is public as opposed to private as a proxy for funding adequacy and 2) a dummy variable for having obtained a professional certificate, a form of measurable outcome. We expect that everything else equal, on average those who are trained in a public institution where funding is adequate would earn more than those who went to a private school, and those with certificates should fare better than those without certificates.

We also differentiate between the wage earners and the self-employed, similar to the treatment in the study conducted by the World Bank (2009). Out of the 1696 interviewed individuals, 992 have been working recently, of which a little over half are engaged in self-employment while the rest have a wage earning job. For those who are self-employed we look at their net profit as their income while for the wage earners we use wage directly. For the self-employed, net profits may be more appropriate measure as it helps level the cost differences between different occupations.

For either wage earners or the self-employed, we run two regressions. In the first regression, we regress income (or net profits the self-employed) on the two variables of interest (whether the institution is public, and whether the individual has a certificate), controlling for basic demographic control variables. In the second regression, we also included literacy indicators that help isolate the confounding factors related to the individuals' personal capabilities. As we may expect public schools to attract the inherently more talented students, the large earning gap in the first regression may reflect not only educational quality but also the personal abilities.

We acknowledge that our methodology has a number of limitations. While public TVET training providers are better funded than private training providers, using public /private as a proxy may capture other differences (in addition to funding differences) between these two types providers. Although we have controlled for a number of observable characteristics including personal abilities, unobservable factors may lead to omitted variable biases. Ideally, we would want to use a randomized control trial, or find a natural experiment, and also obtain data on the level of

funding adequacy. However, due to our limited time and budget, we have to rely on secondary data for our analysis.

6.5 Regression Results

For the wage earners, the results show that if we only control for basic demographic information, on average those who went to public TVET schools earn 74% more than those who went to private TVET schools and those who have certificates earn 125% more than those who didn't. This difference is statistically significant at 1% for both indicators. After taking into the account the person's aptitude level, public school graduates still earn 58% higher income than their private school peers and certificate holders earn 94% more than the non-certified counterparts. This difference is still statistically significant at 10% and 5% for the two indicators, respectively. (Appendix Table 1)

Among the self-employed, although on average public school graduates have higher income, the difference is not statistically significant. Those who earned a certificate, on the other hand, earns 51% (only controlling for basic demographic information) and 58% (also controlling for individual aptitude) higher profits, and the difference is statistically significant at 5% level. (Appendix Table 1)

Despite the limitations in our methodology we identified in section 6.4, our analysis provided us with evidence that more funding could help TVET providers, and certification can be a good outcome measurement, which can predict significant differences in the trainees' ability to earn income after TVET training.

7 CURRENT POLICY INTERVENTION – SKILL DEVELOPMENT FUND

7.1 Background

Responding to the challenges the TVET system is facing, including lack of efficiency and sustainable sources of funding, Skill Development Fund (“SDF”) was established in 2011, with funding from the Ghanaian Government, the World Bank, and Danish International Development Agency (DANIDA)⁹. According to the national TVET policy, SDF will support the acquisition and

⁹ SDF, “About US”, <http://www.sdfghana.org/new/aboutus.php>, accessed on Jan 27, 2013

upgrading of demand-driven skills, industrial attachments for students, and retraining for displaced workers. (COTVET)

The Project Support Unit (PSU) housed in COTVET is responsible for managing the operations of the SDF, including conducting technical reviews of applications and recommending strong candidates to the SDF committee for final review. The SDF committee, chaired by an experienced professional with private sector background, is responsible for the final evaluation and approval of SDF applications. (World Bank 2011, p 15) (See SDF structure in Appendix Figure 2)

Given that the SDF addressed the funding constraint we identified we Section 6, it has the potential to address the challenges faced by TVET if properly structured.

7.2 Eligibility and Target

Consistent with national policies, applications from five sectors (construction & housing, information & communication technology, tourism & hospitality, livestock and horticulture) are encouraged¹⁰. Priorities are also given to programs that are aligned with the National TVET Qualification Framework¹¹. The maximum length of the training programs is 2 years, with 2 months to 8 months being the typical duration. This means that traditional school-based TVET programs, which generally last three years, would not be eligible under SDF.

Specifically, the SDF has four windows (i.e., components), each targeting at a specific sector of the economy, with an objective to increase productivity or profits. Window 1 is intended for formal sector businesses seeking to upgrade the skills of their employees; window 2 is intended for informal sector businesses seeking skills training and entrepreneurship development; window 3 is intended for TVET training providers looking to develop innovative training models and concepts; and window 4 is intended for companies to develop or acquire new technologies, or for Ghanaian technology institutions (e.g., universities) to support technology transfers. (SDF a)

The SDF also requires a minimal level of matching funding from the grantees so that they have some “skin in the game”. (See table 7.1 for further details) According to the SDF, it is worth noting that in order to lower the barrier to applicants, the requirement for matching fund under the SDF is significantly lower than previous programs, which typically require a 50% contribution.

¹⁰ SDF, “Funding Windows”,: <http://www.sdfghana.org/new/fwindow.php?fid=5>, accessed on Jan 27, 2013

¹¹ Ibid.

Table 7.1 - Components of SDF

Windows	Target	Eligible Applicants	Upper Ceiling Per Grant	Matching Funding
Window 1	Formal Sector / Larger Enterprises	Formal Sector Enterprises (in collaboration with training providers)	US\$350,000	20%
Window 2	Informal Sector / Micro-and-small Enterprises (MSE), or associations of such	Informal Sector Enterprises, trade associations (in collaboration with training providers)	US\$60,000	10% (in-kind)
Window 3	Training Innovations, defined as training that is not available in Ghana at the time of application	Training Providers	US\$500,000	25% (cash for private providers, in-kind for public)
Window 4	Technology Partnerships and Training	Firms and Technology Centers	US\$200,000 for firms, US\$1MM for technology centers	50% for firms, 25% for technology centers

Source: Compiled based on information from SDF "Funding Windows", <http://www.sdfghana.org/new/fwindow.php?fid=5> and World Bank (2011)

7.3 Application and Assessment

SDF has eight rounds of call for proposals, from July 2011 to June 2015¹². The 1st call (i.e., round 1) has been completed, while applications for the 2nd call are currently being reviewed. In each call, candidates eligible for any windows may apply.

Applicants are required to complete a seven-page Grant Application Form, including a technical and financial proposal as an appendix, containing some high-level timeline and budget numbers, and expected training outcomes.

According to the SDF, partially in response to the relatively low quality of proposals received in the 1st call, in the 2nd call the SDF has trained over 80 intermediaries (i.e., consultants) across the

¹² Source: <http://www.sdfghana.org/new/aboutus.php>

country to help applicants prepare applications. The consultants get paid a given percentage of the grants if applicants are successful.

The SDF has established a three-step evaluation process for all the proposals received. In step one, the full proposal is reviewed by two external evaluators independently, and potentially a third evaluator if the first two evaluators disagree on their recommendations. In step two, due-diligence was conducted on candidates shortlisted from step one. In step three, final candidates will be submitted to SDF committee for review. (SDF b) (See Appendix Figure 3 for evaluation procedure chart)

8 CHALLENGES THE SDF IS FACING AND DIAGNOSIS

8.1 Disbursement behind Schedule

Actual disbursements of the SDF have fallen behind schedule. According to the SDF, it received 145 applications in the first call, with only 6 grants eventually approved. Poor application quality and lack of manpower to conduct appropriate assessments and due diligence were identified as key reasons for the low approval rate.

The SDF working team (i.e., the Project Support Unit) has been under great pressure from the Ghanaian government, development partners (the World Bank and DANIDA), and training providers to expedite the disbursement of the SDF funding.

Subsequently, there was a change of SDF leadership during the 1st call, and 10 of the 40 evaluators were terminated. The new management also increased outreach efforts, and in the 2nd call, the SDF received about 428 applications, with about 140 applications having satisfactory due diligence results.

However, slow disbursement remains a major concern. Among the first batch of applications submitted to the SDF committee in the 2nd call, only half of them received final approvals, as the SDF committee has reservations about the likely success of some programs. While the eventual approval rate is significantly higher compared to the 1st call, the SDF management would like even more grants to be disbursed.

8.2 Grantees' Lack of Accountability

In the application process, applicants are asked to demonstrate how the proposed skills training will benefit the company in terms of increased productivity and competitiveness. For successful applicants that eventually received the grants, the monitoring and evaluation (“M&E”) team within the SDF will collect base line data as well as endline data.

However, according to SDF, the results of evaluations are for internal learning only, and grantees are not held accountable for the actual results. Therefore, this mechanism is unlikely to instill much accountability on the part the grantees, as the SDF is unlikely to have much control over the outcomes once the funding has been disbursed.

8.3 Difficult in Assessing Applications

The SDF management admitted that assessing the application has been a challenge. Currently, the SDF has to base their grant decision on self-claimed expected impact from written grant applications and on-site due diligence of limited scope. As intermediaries are being paid only when applications are successful, both the applicants and the intermediaries have strong incentives to “window-dress” a proposal or inflate numbers.

Further, with hundreds of applications going through the process and only 30 evaluators, the capacity to conduct thorough reviews and due diligence is limited. Limited ex-ante information also leads to diverging views between the SDF working team and the SDF committee (which has the final approval authority) about the likely success of business models of grant applicants.

8.4 Diagnosis and Analysis

There is significant information asymmetry between the grant applicants and evaluators. While estimates for productivity gains are not easy, grant applicants have better knowledge about the likely results than the SDF. With expected productivity gains as one of the benchmark for giving grants, applicants may be motivated to inflate their expected outcomes in order to receive grants. After they receive the grants, grantees may also engage in activities that exhibit moral hazards, for example, by simply pocketing the money and providing little or no training.

The existence of eight rounds may alleviate the problem to some degree, as it resembles a repeated game, whereby the reputation of applicants established from previous rounds may affect their chances at subsequent rounds. However, if low quality training providers think that no matter how hard they work, they would still not be able to establish a good track record, they may be motivated to gain as much as possible from a single round, by lying in their applications. If they are successful, it will come at the expense of high quality training providers.

While a certain level of matching funding is required and help the alignment of interests between grantees and the SDF, grantees may be incentivized to inflate the cost figures, which results in a lower level of actual contribution. So in the end, applicants may not have any skin in the game.

The challenges that the SDF are facing – namely, slow disbursement, difficulty in assessing the merits of the applications, and lack of accountability on the part of grantees are intertwined. The difficulty to accurately assess the merits of applications and instill sufficient accountability in the system, in turn leads the SDF to be very conservative in the grant making process, and applications that could have otherwise succeeded fail to receive the grants.

If stronger accountability and incentives to perform can be introduced into the system, even if the SDF still have difficulty in assessing the applications initially, the importance of such ex-ante assessment has reduced. The SDF can rely on stronger accountability and incentives in addition to initial assessments to achieve its objectives, and therefore can be less conservative in the grant-making process, which would help speed up grant disbursements.

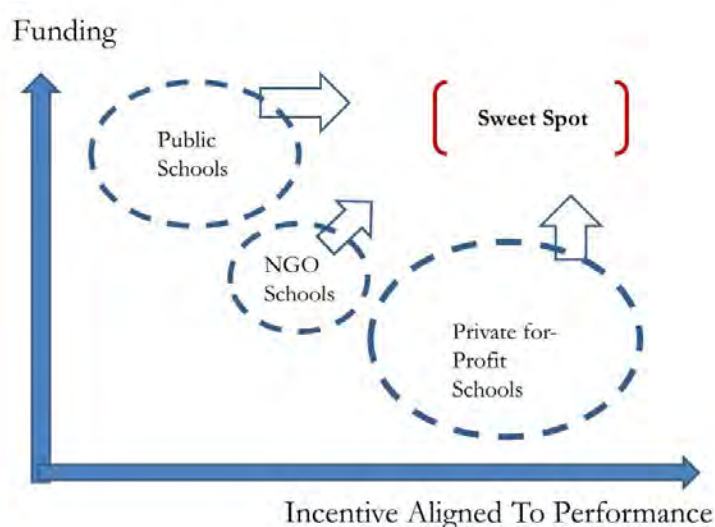
9 OUR RECOMMENDED POLICY INTERVENTION

9.1 Objectives

As we demonstrated previously, public schools have better funding yet the incentives are less aligned, while private institutions have better incentives yet insufficient funding. Figure 9.1 illustrates this point, with alignment of incentives on the horizontal axis and funding on the vertical axis.

Our objective is to achieve the scenario in the northeast corner, where incentives are better aligned, and funding needs are addressed as well. A measurable outcome (such as certificates), coupled with appropriate contract designs, could achieve this objective.

Figure 9.1 – Schools on a Two by two Matrix (Funding and Incentives to Perform)



9.2 Low Hanging Fruit – Better Outreach and Transparency

The training institutions and the employers who sponsor training programs express some frustration towards the SDF grant application process, which could be addressed relatively quickly. The main complaints are:

1. The availability of grants is not well advertised, especially among employers who are eligible to partner with training providers and apply under Window 1 or Window 2 of the SDF.
2. Although the SDF has published a set of criteria, it is unclear to some grantees what specific “de-facto” criteria the SDF is using in evaluating grant applications. No explanations were given to applicants who failed to obtain the grants, although the applicants themselves believed that all explicit criteria have been met. We heard that the level of English fluency as reflected in grant applications seems to affect the likelihood of success, though English fluency may not be related to the effectiveness of the TVET training at all.
3. The intermediary mechanism designated by the SDF to help with application raises fairness concerns. Also some training providers complained that the intermediaries do not have sufficient industry knowledge to help build a strong application.

The SDF, on the other hand, also shows dissatisfaction towards the quality and sincerity of applications received. According to the SDF, many applicants clearly do not know the basic criteria

and could not even pass the initial screening, and some allegedly treated the process as a lottery and there is a general lack of efforts shown in the application forms. To prevent applicants from gaming the system, the SDF also strategically withholds information related to some criteria.

We believe the first step towards allocating the resources to the right recipients is to improve the outreach and the transparency of the application process so that more qualified service providers could enter the pool for consideration and present themselves more effectively.

In terms of outreach, the SDF could better take advantage of the coordination role of the COTVET, and make the information available via multiple platforms including the COTVET's existing connections with TVET training providers and employers. For instance, the COTVET work with a group of employers who partner with the TVET institutions, and a lot of these skills and technologies satisfy the core requirements of the grants under Window 1 in terms of being “demand driven” and “cutting edge for Ghana”, yet many of these partner companies are unaware of the program.

In terms of transparency, besides providing more clarity on the official documents, another way is to organize information sessions and establish a channel for two-way communication. The primary purpose of the information sessions is to allow service providers to have a better understanding of the funding criteria through in-person interpretations with the SDF team. Some commentaries on successful or failed applications and the decision-making process could also help improve transparency.

9.3 Short Term Intervention – Plain Vanilla Pay for Success

In status quo, grantees are paid based on their promise to deliver services, while in pay for success model, grantees are paid based on results. Pay for success model requires performance-based contracts between the service providers (grantees) and the SDF. Before the grants are disbursed, the SDF could enter into agreements with grantees on the specific targets for training outcomes. The grantees will carry out the training activities first, with their internal generated or borrowed funds. At the end of the program, the SDF could conduct a rigorous evaluation of the outcome, benchmarked against the contracted target. If the desired outcome stipulated in the contract was not achieved, then the grantees would only receive partial grants or no grants at all. Due to the relatively simple

structure compared to a more complex version to be introduced later, we call this “Plain-Vanilla Pay for Success”. Appendix Figure 5 provides a graphic demonstration of the model.

In SDF’s existing contracts, certain categories of grants already require 25% fund matching from the service providers. Despite this requirement, the SDF still draws a large number of applicants, which shows the willingness of the providers to expose more “skin in the game” in order to obtain the grants.

Suppose that instead 25% match funding plus 75% upfront grants, the SDF modifies its contracts to a new scheme of 25% match funding and 25% - 50% upfront grants, with the remaining as conditional result-based grant. This would better align incentives, although it would also raise the bar for those who can participate as more working capital is needed.

Rigorous evaluation of the results is crucial for the success of pay for success contracts. Depending on the nature and objectives of the training, grantees will be evaluated based on matrices such as number of certificates obtained, improvement in productivities and increased employability. We will discuss this in detail in section 9.5.

This pay for success contract would be attractive to the SDF as it improves “coverage rate” in that it allows more qualified applicants to receive funding while the “leakage risk” remains low due to conditional payments. A salient feature of the plain vanilla pay for success contracts is that the percentage of grants conditional on results could be customized, depending on the perceived risk level of the applicants and their financial strength.

Another benefit is that it forces the setup of formal monitoring and evaluation process which help build the track record for the more advanced option with investors.

A potential drawback for the pay for success contracts is that it may disadvantage small providers or employers, who may not have the financial strength and resources to pre-finance the required working capital, yet would benefit more from government grants. However, this limitation could be mitigated with the further involvement of investors to provide a source of working capital.

9.4 Long-Term Intervention – Involve Investors (Social Impact Bond Model)

In the long-term, with a good track record of evaluation and performance established from the plain vanilla pay for success contracts, it is possible to involve investors. The primary benefit of bringing in investors is they could help pre-finance the working capital for service providers.

This is also known as the social impact bond model. Similar to plain-vanilla pay for success contracting, the entire or a significant portion of disbursements would be made by the government/donor (in this case, SDF) only if the desired outcomes are achieved, after a rigorous evaluation following the conclusion of the program. Figure 6 in the Appendix provides a graphic demonstration of the model.

In our context, SDF would set up pay for success contracts with training institutions and companies that are qualified for the grants. The investors would pre-finance the working capital needed and obtain a risk adjusted return. If the service delivery is deemed successful based on agreed upon criteria then the investor gets paid by the government in full, otherwise the investor would bear the loss.

Similar to plain vanilla pay for success contracts, this option is appealing for the SDF as it allows more grant disbursements, which helps achieve greater impact while minimizing the risk of funding “non-performing” projects. For the grant applicants it is also a better option than plain vanilla pay for success contracts as it provides an avenue to finance the working capital at affordable price. Currently in Ghana, access to finance is difficult with typical interest rates well about 30 percent. Small institutions will find this option especially appealing as they are in higher demand for grants and have more difficulty in providing cash upfront to cover their expenses.

The integrity for the evaluation and measurable risk is a key driver for investors’ continued involvement. Without a rigorous and objective evaluation process and a strong track record the investors cannot assess their risk return profile, and would therefore be reluctant to invest. Due to relatively high risk and modest returns, socially-minded investors would be our initial targets, as they’re already giving away grants currently, and under the social impact bond model they could potentially get their grants back from the government if the results are satisfactory.

9.5 Contract Design and Performance Matrices

We have identified that it is essential to establish a set of measurable standards to evaluate the performance of the service providers in either plain vanilla pay for success model, or the more advanced version with investors. In TVET training, the definition of success would vary depending on the purpose of the training. That being said, we have identified three broad categories that could apply to the majority of the training programs:

- Increased number of graduates with certifications, especially for trade areas and skills that are in high demand;
- Enhanced employment rate as a result of training; and
- Improved productivity from the effective training of new technology.

We demonstrated in our regression analysis in section 6 that having a certification will significantly enhance TVET graduates' income. We also demonstrated that there is large demand from the labor market for the skilled labor with proper training and credentials. Therefore, measuring a training institution's capability of producing graduates with certifications in their trained areas is one effective way to evaluate the results and align incentives. Moreover, in order to obtain a certificate, trainees have to go through a national standard exam, which provides an objective measurement that is hard to manipulate and easy to audit.

Another possible measurement for success is the employability of the training programs graduates. In some private programs where the trainings are effective and the objectives are highly linked with industry demand the employment is as high as 100% if the students decide to pursue the jobs in the area they are trained for. As demonstrated in our analysis, many public programs are not incentivized to target employment and hence even the best schools have relatively modest employment rates. However, the employment data is hard to audit, and could be manipulated.

For the applicants that are employers (under Window 1 or 2), the purpose of the training is to improve productivity. A simple way to measure success is increased output after training or adopting a technology. The exact matrix could vary. For manufacturing businesses, we can measure the output per worker before and after the training. For service oriented businesses, we can measure the increase in profits or taxes paid to the government per worker that are attributed to the increased productivity. Similarly, the productivity data could be subject to manipulation.

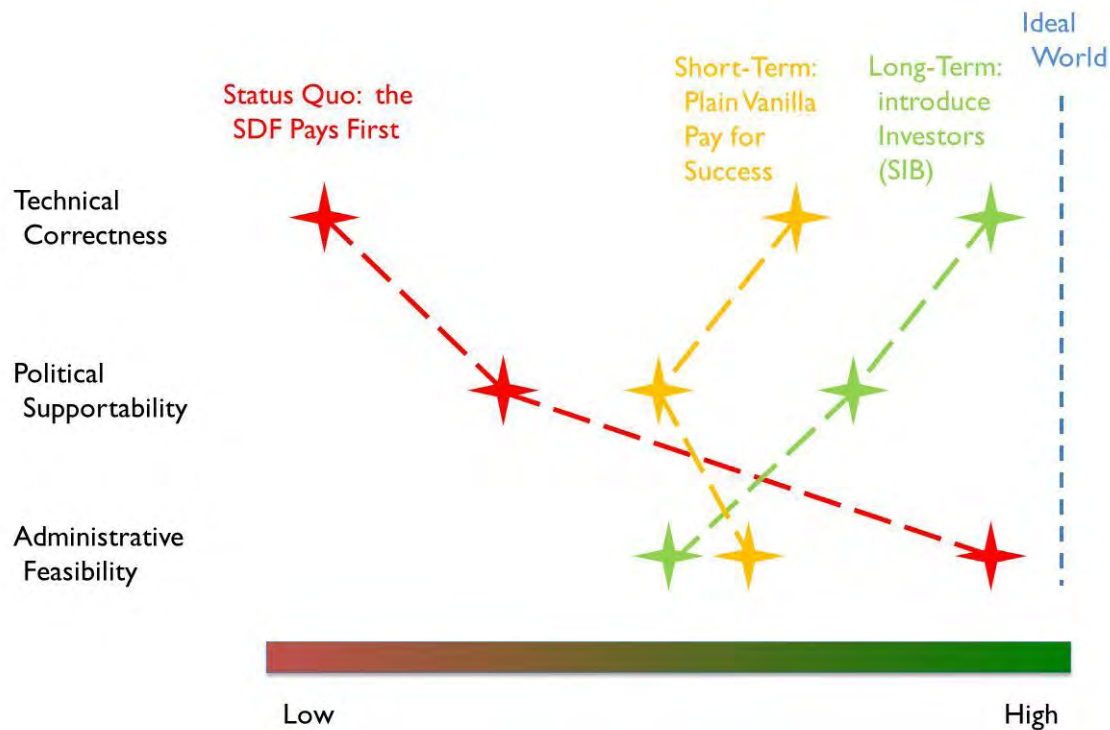
From our discussion with the SDF, we realize that conditioning the entire payment on success would likely face strong resistance, as it places all financial risks on the grantees and require a change of mindset on the part of grantees. It also places too much financial risk on potential investors. Therefore, in contract design, instead of conditioning the full payments on results, we recommend that we only condition partial payments on results, in either the plain vanilla model or social impact bond model.

To maintain the integrity of the evaluation, and considering the political pressure the government may face, we believe that it is essential to use an independent agency as the evaluator. An ideal evaluator would be one with renowned reputation and rigorous methodologies and which are trusted by all stakeholders. Innovations for Poverty Actions could potentially play this role given its technical expertise in project evaluation, academic rigor, and developing country experiences.

10 ANALYSIS OF POLICY OPTIONS

10.1 Policy Options for the SDF

Figure 10.1 Comparison of Policy Options



As discussed before, our proposed solution included a short-term intervention (plain vanilla pay for success), and a long-term intervention (introducing investors). The figure above is a summary of these options based on their technical correctness, political supportability and administrative feasibility. Detailed analysis is presented in the remainder of section 10.

10.2 Detailed Analysis of Status Quo

10.2.1 Technical Correctness: Low

While the outcomes of the initial disbursements remain unknown, if the SDF choose to function in the status quo, it may not be able to achieve its objective of productivity and employability gains. As argued before, in the current structure, the granting of funds are based on ex-ante information from the grant applications (which consultants have helped furnish anyways) and limited on-site due diligence, making it very challenging to distinguish the true merits of different proposals. Although the applicants are required to self-identify expected productivity gains in the grant application, they are not held accountable to the actual results. Asymmetric information and moral hazard may lead applicants to inflate their numbers in order to obtain grants, and under-supply their efforts after grants are disbursed.

10.2.2 Politically Supportability: Low to Medium

In the short run, responding to complaints about high rejection rate in the first round, one key focus for the SDF has been to increase the speed of disbursements, which could be achievable under the status quo as the SDF staff become more and more experienced in the evaluation process. However, insufficient clarity on potential outcomes could still concern the SDF committee, making the disbursement process slower than the ideal speed.

There is a strong push among donors, including the World Bank, DFID and USAID, for result-based financing. (Instiglio, 2013, p.5) The status quo is unlikely to satisfy the demand of the World Bank, who is a key constituent.

In the long run, failure to identify the true merits of the proposals may lead to inefficient allocation of valuable resources and poor training results, and political support among the general public may gradually erode, as resources are expended without achieving desirable level of outcomes.

10.2.3 Administrative Feasibility: High

The benefit of the status quo is that the program is relatively easy to administer. Following the change of the SDF fund manager and enhanced training for consultants and evaluators, the pipeline for quality proposals have significantly increased. Keeping the status quo does not require changes to the existing process, and has been proven to be feasible administratively.

10.3 Detailed Analysis of Short Term Intervention - Plain-Vanilla Pay for Success Model

10.3.1 Technical Correctness: Medium to High

Plain-Vanilla Pay for Performance better aligns the incentives between grantees and the SDF, as payments were delayed until outcomes are achieved. Such arrangement helps address the problem of information asymmetry, and the SDF would not be disadvantaged from not knowing the underlying quality of the training providers and programs. It also helps solve the problem of moral hazard: the grantees will be strongly motivated to achieve the specified results; otherwise they will not receive the conditional payment and lose significant part of their upfront investments into the training programs. Under this arrangement, a significant level of financial risks is transferred from the SDF to grantees.

However, certain market failures in Ghana may make this Plain-Vanilla Pay for Performance contracting less attractive. While large companies in formal sector (under Window 1) may have sufficient financial resources to weather the loss if outcomes are not achieved, most companies in informal sectors (under Window 2) and training providers have relatively low risk tolerance and may not have enough equity capital as a buffer.

Even if grantees have the financial capacity to absorb potential losses, they could also face serious shortages in working capital when they're asked to perform the services first and get the payment later. Currently it is very difficult for small companies in Ghana to have access to bank credits due to lack of collaterals, and a contract, which is often bankable in the US, is often not bankable in Ghana. Further, even if they're able to obtain bank credits, the interest rates are generally very high - in excess of 30% annually. Therefore, small enterprises and training providers will be largely shut out of the process.

10.3.2 Politically Supportability: Medium

This move is likely to gain support from donors which would recognize the merits of performance-based contracts. It would also create more value by having providers deliver improved training results, which would generate better employment and income outlook for TVET trainees.

However, small enterprises and training centers (both of which are important constituents for Government of Ghana) are disadvantaged by the process due to lack of access to affordable credits, so only large training centers can participate in the pay for success process if offered the opportunity.

10.3.3 Administrative Feasibility: Medium

To administer this pay for performance model would require some significant changes to the existing administrative process. First, a contract needs to be signed between every grantee under such arrangements and the SDF. Given that grantees are targeted at different sectors of the economy with different training programs, the programs must be customized, which would add significant legal work. Also, as the payments are conditioned on specified results, the appropriate measurements (for example, employability or productivity gains) and the appropriate level of targets need to be carefully determined and mutually agreed upon, such that it achieves a desirable level of social outcome, without placing undue burden or unrealistic targets on grantees.

Due to the importance of the final evaluations, the SDF also needs to bring in independent third party evaluators, for example, IPA. Again, due to a large number of highly customized contracts, rigorous evaluations could be very time-intensive and resources-consuming. At the minimal, it would require a large number of well-trained independent evaluators. Due to high administrative costs, only large-scale projects justify the cost. Grantees may also decide to contest against the evaluations if the results show that they fail to achieve the pre-specified targets.

10.4 Detailed Analysis of Long-term Intervention – the Social Impact Bond Model

10.4.1 Technical Correctness: High

In a social impact bond model, the financial risks rest principally with socially minded investors, who are not credit-constrained and have greater capacity in bearing risks and absorbing

losses. It also adds an additional level of monitoring over service providers, as both the social impact bond intermediary and investors have an incentive to ensure the compliance and efficiency on the part of service providers.

As the SDF is only asked to pay if outcomes are satisfactory, it will be less concerned in the disbursement process, which will allow faster disbursements and greater coverage.

Granted, as the principal financial risks have been transferred to investors rather than service providers themselves, compared to plain vanilla pay for performance contracting, service providers may be less motivated to perform, and asymmetrical information and moral hazard could remain a problem. However, if properly structured, the contract can also ensure that service providers still have some skin in the game. Continuous monitoring, such as spot checks and auditing by representatives of investors and social impact bond intermediaries can also help enforce compliance.

10.4.2 Politically Supportability: Medium to High

As investors bridged the working capital gaps and took the principal financial risks when outcomes are not achieved, enterprises or training providers are sheltered from significant financial losses or borrowing costs, and therefore are much more likely to support this model compared to plain vanilla model. In particular, small enterprises and training centers, which are naturally excluded from the short-term intervention, now can afford to participate in the program.

10.4.3 Administrative Feasibility: Medium

SIB suffers from similar administrative challenge as plain-vanilla pay for performance contracting: a customized contract with unique performance targets needs to be established between the SDF, service providers and the intermediary, and rigorous evaluations needs to be conducted by independent evaluators. Given the existence of investors, the legal agreements between parties would be even more onerous, and more disputes could also occur following the evaluations.

11 Conclusion

The Skill Development Fund, a challenge fund designed to build capacity in the TVET system in Ghana by providing much-needed funding to TVET training providers and companies in need of TVET training, is facing several inter-related challenges, including slow disbursements, lack of accountability on the part of grantees and difficulty in evaluating proposals.

Our recommendation includes plain vanilla pay for success contracting in the short term, and involving investors in the pay for success contracts in the long term. A comparison between these options and the status quo demonstrates that our recommended package could be a promising solution to the challenges that the SDF is facing. By conditioning substantial amount of payments on achieving satisfactory results, the SDF is removed from significant financial risks in unsuccessful programs, and at the same time, induced much stronger incentives to perform in the system.

A number of matrices could be used to track the performance. Our analysis shows that among wage earners, those who graduated from better funded TVET providers (i.e., public schools) earn 58% more than those from less well-funded schools, controlling for other variables. More importantly, among all TVET graduates working in the formal sectors (i.e., as wage-earners), those who possess well-recognized TVET certificates¹³ earn 94% more than those who don't have any certificates, while the difference is 58% in the informal sectors (i.e., as self-employed).

Therefore, we believe that certification is a good performance benchmark for training outcomes in the pay for success contract between the SDF and grantees, as certification is a good predictor of income earned by TVET graduates. Certification also has the benefit of being relatively objective and difficult to manipulate. We are confident using our recommendation has the potential to help the SDF address its immediate challenges in disbursing the grants in a timely manner, while instilling greater accountability in the system, so the working population in urban Ghana can be better served.

¹³ NVTI and City & Guilds

CASE STUDIES

Case Study 1: Public Institution: Accra Technical Training Institute (ATTC)

Background:

Established in 1966 by the Canadians, ATTC has a great reputation as a technical training institution and is one of the best in terms of infrastructure. For its 850 full time trainees ATTC offers 4 year courses¹⁴, and many graduates go on to attend polytechnics. It also has 640 part time students who are typically engaged in part time job activities as well. ATTC offers 17 skills for the participants including painting, gas fitting, construction, electrical installation, carpentry, mechanical engineering, craft, computer systems support, auto mechanics, small engines repairs, fabrication & welding, and auto body repairs. ATTC is known for its industrial maintenance program where students are trained in the areas of hydraulics, electric control, which are heavily applied in the mining, textile, and military sectors.

NVTI certification programs are also carried out in ATTC for a two year period training, which tend to teach less advanced skills compared to the other subjects offered at school.

Finance and Cost of Attendance:

To attend a public TVET institution like ATTC, students only need to pay a fee of around 40 Cedis per term and there are three terms per year. The cost is low because GoG pays for the salaries of teacher. Despite the high proportion of the cost covered by the government, overall funding is still insufficient to meet training needs such as upgrading training materials for mechanical engineering. Due to this financial gap, the school has come up with creative ways to generate revenues through contracting out trade projects to the market, which in turn helps students to practice their learnt skills. Parents of students are also asked to chip in from time to time. Three factors contribute to the financial constraint:

- Parents do not wish to pay more for TVET training as they perceive TVET as inferior to “mainstream education”, hence generates low return on their payment.
- The government allocates very limited resources to TVET as mentioned in previous section.

¹⁴ The length of the full time programs will soon be reduced to 3 years under the newly developed curriculum. If the students enter from SSS, the length is 2 years.

- ATTC has been unsuccessful in obtaining public grants in the past couple of years even as a leading TVET institution due to the strict criteria and stringent application process.

Incentives to Perform:

80 percent of ATTC's students get jobs before graduation (75:25 split between the formal sector and the informal sector), which is remarkable performance considering that for some institutions only 20-50% students secured employment before graduation. This outcome is attributed to ATTC's location, relationship and collaboration with the industry. However, we identify areas that could be further improved in order to better align incentives to training outcome:

- Teachers' practical experience: ATTC's minimum requirement for its teacher's education is a degree from a polytechnic school. However, due to practical reasons there is no minimum requirement for relevant industry experience, as they believe if a teacher has worked in the industry they would not have come to teach in TVET due to uncompetitive salaries.
- Evaluation and compensation: teachers and management staff are being appraised annually by their superiors based on their personality, abilities, and professional integrity, etc. Teachers' salaries are mostly determined based on their degree and tenor. There is no direct link between their performance and compensation, and their ability to bring innovative method and updated curriculum¹⁵.
- Lack of flexibility as a public institution: As a government funded institution, it has to abide by the regulations and oversight of the government, which includes having its curriculum approved. This gives ATTC little flexibility in changing the skills it teaches. If the institution has to rely on self-funding, school could be more autonomous and there is much better incentive to deliver market oriented skills and. One school official indicated that privatization could be a viable option for the school's better development.

Case Study 2: Public Institution: National Vocational Training Institute (NVTI)

Background:

¹⁵ In fact, teachers little flexibility in designing the curriculum as it is approved and fixed by the government.

NVTI was established in 1970 with a mandate to coordinate apprenticeship and TVET in Ghana. It later became a prominent TVET provider itself while the coordinator role was reduced. On the training side NVTI is comparable to ATTC where a variety of trade courses are offered to trainees. Depending on the background of the students, the length of the training for obtaining the certification runs from 2 to 4 years. It has a network of training center dedicated to administer the training programs. NVTI also has a significant involvement in the apprenticeship programs. Given the large informal economy in Ghana, NVTI is leading the effort to standardize training activities. As a large public institution, NVTI faces the same financial and incentive constraints as ATTC.

Special Role as a Certification Administrator:

NVTI is also an administrator for a series of trade certification processes. NVTI has developed training standards for all vocational schools and is an issuer for trade certificates. It also partners with different public and private schools that incorporate the NVTI standard curriculum as part of their course offering. Out of the 9 ministries that oversee TVET institutions all run NVTI's programs. Obtaining certificates will increase students' chance of entering the formal economy, as all of public sector and a large part of the formal private sector require a certificate during the recruiting.

Case Study 3: Private For Profit Institution: Second Imagine International

Background:

Privately owned Second Image was established in 1986 by a British trained female entrepreneur who remains her principal position of the institution until today. It has evolved from an informal training shop to a formal training institution with 200 students. The training subjects mostly focus on beauty therapy, hairdressing, cosmetology, and fashion design. It also offers trainings on IT hardware, English, entrepreneurship etc. The institution is deeply connected with the salon and fashion industry where they became an inseparable part of the industry itself.

Most of its programs last for 3 years and there are some short modules as well. The center adopts British curriculum where standard certification exams are carried out. The course offerings are flexible enough that it would revise its curriculum every 2 years to incorporate new industry and fashion trends and it allows 4 cohorts of students every year.

There are no entrance exams but most students have at least a JSS degree. Most students come to Second Image with a clear objective, i.e. to work in the industry in their area of expertise. Some of them also want to obtain nationally accredited certificates that allow them to further their education. Due to a relatively focused study concentration and comparatively higher fees, the students are generally motivated to learn. Students study and work at the same time through school arranged attachment programs, with 5 hours of study and 8 hours of work every day.

Finance and Cost of Attendance:

Revenue mainly comes from the tuition paid by the students. Depending on the discipline, the amount of tuition varies. For instance, hair dressing costs about \$700 a year, with basic equipment and materials included in the fees. Most students rely on family and other sources to finance their study. Tuitions collected from the students are sufficient to cover routine operations such as teachers' salaries and utilities, although paying for teaching space has been an issue occasionally, and the school had to borrow cash to cover rent at a high interest rate.

To expand their operations, recently the school would like to purchase a building that would require a mortgage of 600 thousand dollars. However the loan needs to be paid back in 5 years at an interest rate of 31%, which makes it impossible for the school to afford.

Incentives to Perform:

Second Image is generally helpful in achieving these goals. According to the principle, unless students chose not to, they are able to find a job upon graduation or soon after. This has to do with the school's push for the practical training and on-the-job learning in the industry. The school considers the collaboration with industry a key strategy. To strengthen this effort, the school has cultivated a strong alumni network where previous students who open shops would hire Second Image's students as interns and employees.

There is a total of 12 full-time teaching staff, most of whom have industry background. Evaluations are done on the teachers based on their self-assessment and future plans, and feedback from students. Both the level of education and industry experience are considered in determining teachers' compensation. Every 3 to 4 months the school also invites outside experts to discuss new trends, or give teaching staff training on new skills.

Case Study 4: Private Not for Profit Institution: Vocational Training for Female

Background:

Established in 1992, Vocational Training for Female (VTF) is affiliated with Presbyterian Church of Ghana. It is a support network of 50 vocational institutions. Its initial member groups were church-based institutions but later expanded to other public and private schools. The founding of VTF is a product of the privatization movement that took place in the 1980s where many people were forced to look for new jobs where new skills are required. A research by the Church showed that TVET wasn't effective in bridging the gap, because people lacked necessary hand holding and entrepreneurial skills to set up business, and the TVET curriculum was outdated and teachers lacked training themselves. VTF was created to address these problems. Their solutions were

- Conduct inter-disciplinary training for the teachers of its member organization so they are capable of providing guidance counseling for students on career options;
- Established a training center for instructor development;
- Advocate and lobby policies on TVET;
- Research and tracking performance of new initiatives.

Finance:

The majority of the funding for daily operations comes from German church as well as fees collected from the member institutions. Typical funding cycles are three years, and donors would evaluate the results and renew contracts every three years. There are times when the center runs short on cash in between contract periods, in which case everyone will try to save more than usual.

VTF has attempted to use loans as an alternative to cover the cash shortfall but has been unsuccessful. Even as a well-established organization, VTF is considered as a high risk borrower by banks due to its reliance on donor funding.

Advocate for Best Practices:

VTF has a focus on the job placement aspect of the TVET training. It helps its students of its member institutions to find jobs through the following practices:

- Fund trainees to go into industry by providing stipend and organize skill sharing sessions, and spot checks on industries that have good practices;
- Support apprentices in the informal sector by providing seed capital to start new businesses;

- Create and maintain database for job placements, wage, and performance at work.
- Help students develop resume, grooming skills and social etiquettes.

To better evaluate the relevancy of the skills provided at school and training's long term effect on trainees' career, VTF suggests that its member institutions contact employers to receive feedback for its students and also interview its students after the completion of the program.

Employer Feedback

We spoke with a few employers of TVET graduates to gain understanding on how TVET graduates perform at the work place, and competitiveness of TVET graduates in the labor market:

- A waste compost plant in Accra
- One of the largest bottle water supplier
- A consumer electronics distributor and servicing company
- A head hunting firm specializing in oil & gas industries
- A privately owned rice farm that is highly automated

Below are a few noticeable themes that stood out from our conversations:

1. Lack of experience affects the ability to find jobs: typically firms prefer to hire workers with hands-on experience instead of spending time to train fresh graduates of TVET. This is especially true in capital intensive industries as the employers are relatively insensitive to the cost of labor. For example, when an oil company builds a new plant in Ghana, it will try to find Ghanaian workers who had gained experience from overseas as Ghana doesn't have domestic oil plants and then consider workers from other energy sectors such as mining.
2. Government programs create opportunities for TVET graduates: COTVET bridges companies with TVET institutions with on-site training programs. COTVET would select a group of students from a pool of public and private institutions who are studying relevant skills that match the industry demand. These programs last 4 to 6 months where the trainees receive moderate support from the company such as free transportation and some basic stipend. Students in the programs learn the most up-to-date skills practiced in the industry and gain an

opportunity to work full-time after school. Partner companies receive cheap labor and feel good about fulfilling a social mission. Government sponsorship brings credibility to the process so the employers are willing to try and make investments on training the participants.

3. Dynamic skill development needed for TVET: several employers have complained that TVET graduates lack basic inter-personal skills to effectively communicate with managers and coworkers, and didn't have enough English or Science training in order to understand the theory behind practice.

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APPENDIX

Table 1 Regression Result for Wage Earners and Self-Employed

VARIABLES	Wage Earners (1) – (2)		Self-Employed (3) – (4)	
	(1) ln_inc	(2) ln_inc	(3) ln_profit	(4) ln_profit
public_tvete	0.739** (0.329)	0.581* (0.345)	0.0901 (0.179)	0.0737 (0.180)
cert_nvte	1.244*** (0.338)	0.944** (0.371)	0.507** (0.214)	0.583** (0.260)
male	-0.164 (0.267)	-0.294 (0.284)	0.719*** (0.166)	0.734*** (0.167)
accra	-0.0150 (0.282)	0.101 (0.296)	-0.0512 (0.191)	-0.000480 (0.199)
trade_union	-0.177 (0.462)	-0.0493 (0.507)	-0.428 (0.271)	-0.712** (0.298)
father_edu	0.0225 (0.0247)	-0.00456 (0.0277)	0.0211 (0.0159)	0.0229 (0.0168)
public	0.718 (0.687)	0.292 (0.799)		
age_new	0.422*** (0.0718)	0.414*** (0.0754)	0.0559 (0.0489)	0.0601 (0.0506)
age_new_sq	-0.00461*** (0.00103)	-0.00456*** (0.00107)	-0.000561 (0.000666)	-0.000645 (0.000684)
years_edu		0.0600 (0.0578)		-0.00786 (0.0312)
engscore		0.0136 (0.0256)		-0.0130 (0.0149)
mathscore		0.0355 (0.0438)		-0.0240 (0.0373)
ravenscore		0.00736 (0.0358)		0.0555** (0.0268)
Constant	3.348*** (1.128)	2.906** (1.188)	10.49*** (0.843)	10.55*** (0.853)
Observations	134	131	131	130
R-squared	0.572	0.583	0.246	0.286

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2 Distribution of GDP (at Basis Prices) by Economic Activity

	2007	2008	2009	2010*	2011**
AGRICULTURE	29.1	31	31.8	29.8	25.6
Crops	20.3	22.4	23.6	21.7	19.3
o.w.Cocoa	2.7	2.5	2.5	3.2	3.6
Livestock	2.3	2.1	2	2	1.8
Forestry and Logging	4.2	3.7	3.7	3.7	2.8
Fishing	2.3	2.7	2.5	2.3	1.7
INDUSTRY	20.7	20.4	19	19.1	25.9
Mining and Quarrying	2.8	2.4	2.1	2.3	8.5
o.w. Crude Oil	0	0	0	0.4	6.8
Manufacturing	9.1	7.9	6.9	6.8	6.7
Electricity	0.6	0.5	0.5	0.6	0.6
Water and Sewerage	1	0.8	0.7	0.8	0.8
Construction	7.2	8.7	8.8	8.5	9.2
SERVICES	50.2	48.6	49.2	51.1	48.5
Trade; Repair Of Vehicles, Household Goods	6.1	6	5.9	6.2	6.3
Hotels and Restaurants	5.6	6	6.2	6	5.4
Transport and Storage	13.1	11.4	10.5	10.6	10.1
Information and communication	2.4	2.2	1.8	1.9	1.8
Financial Intermediation	3.4	3.8	4.3	5.2	4.5
Business, real estate and other service	4.7	4.1	4.1	4.5	4.7
Public Admin. & Defense; Social Security	5.9	6.3	7	7	6.4
Education	3.9	3.9	4.2	4.3	4.2
Health And Social Work	1.4	1.3	1.4	1.6	1.3
Other Community, Social & Personal Service	3.7	3.6	3.7	4	3.9
GDP at basic prices	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Services. Retrieved on February 2, 2013 from

http://www.statsghana.gov.gh/docfiles/GDP/revise_d_gdp_2011_april-2012.pdf

Table 3 Sectorial Sources of Economic Growth, 1990 – 2006 (%)

	Share of GDP		Growth Rate	
	1991	1998	2005	1991-2005
GDP	100%	100%	100%	
Agriculture	38.6%	35.2%	34.5%	-0.8%
Mining/Quarrying	4.9%	5.5%	4.9%	0.0%
Manufacturing	9.5%	8.8%	8.6%	-0.8%
Utilities	2.3%	2.4%	2.5%	0.8%
Construction	6.8%	7.4%	8.1%	1.3%
Trading	4.1%	4.4%	4.8%	1.2%
Trans. & Comm.	5.3%	6.4%	6.9%	2.0%
Financial Services	4.0%	4.1%	4.2%	0.4%
Community & Other Services	24.8%	25.9%	25.5%	0.2%
	Share of Labor Force			
Labor Force	100%	100%	100%	
Agriculture	60.3%	51.4%	53.2%	-0.4%
Mining/Quarrying	0.5%	0.9%	0.8%	-0.9%
Manufacturing	8.8%	12.3%	11.8%	3.2%
Utilities	0.1%	0.2%	0.2%	2.1%
Construction	1.2%	1.7%	1.9%	2.7%
Trading	16.9%	20.0%	18.6%	3.4%
Trans. & Comm.	1.9%	2.6%	3.1%	0.7%
Financial Services	0.5%	0.9%	1.2%	3.5%
Community & Other Services	9.7%	10.1%	9.2%	6.1%
	Average Productivity(GDP based)			
All	9.4	12.2	11.6	1.5%
Agriculture	6.0	8.3	7.5	2.2%
Mining/Quarrying	90.7	76.9	72.9	1.6%
Manufacturing	10.2	8.7	8.5	-1.5%
Utilities	145.4	139.5	138.0	-1.3%
Construction	52.6	54.2	48.6	-0.4%
Trading	2.3	2.7	3.0	-0.6%
Trans. & Comm.	25.6	30.2	26.0	2.0%
Financial Services	70.1	55.4	40.0	0.1%
Community & Other Services	24.0	31.3	32.3	-3.9%
	Average Productivity(Consumption based)			
All	6.0	7.8	10.1	3.7%
Agriculture	4.7	5.6	7.4	3.8%
Mining/Quarrying	9.1	13.1	12.2	3.3%
Manufacturing	7.0	9.1	11.6	2.1%

Utilities	13.7	11.2	20.1	3.7%
Construction	8.0	8.5	12.1	2.8%
Trading	7.4	9.7	12.7	3.0%
Trans. & Comm.	10.5	13.1	13.9	4.0%
Financial Services	11.3	17.4	19.5	2.0%
Community & Other Services	9.2	10.6	15.3	4.0%
	Poverty Headcount			
All	49.5%	35.2%	25.8%	-4.5%
Agriculture	61.5%	49.4%	38.4%	-9.3%
Mining/Quarrying	34.2%	7.6%	4.7%	-3.3%
Manufacturing	35.5%	25.9%	17.5%	-13.2%
Utilities	18.2%	11.6%	0.0%	-4.9%
Construction	29.7%	20.9%	10.2%	NA
Trading	33.8%	21.2%	11.0%	-7.3%
Trans. & Comm.	20.7%	8.3%	11.7%	-7.7%
Financial Services	12.5%	5.8%	5.3%	-4.0%
Community & Other Services	26.3%	17.0%	6.7%	-5.9%

Average productivity = real GDP/LF.

Source: World Bank (2009) Table 2.

Table 4 Profile of Unemployed Youth in Ghana, 2001

Proportion of Young Persons Who...	Male	Female	Total
Could be described as illiterate due to early drop out of school or not having been to school at all	20.8	23.2	21.6
Have acquired some skills from the technical and vocational institutions including apprenticeship training but need retraining to make them succeed in Ghana's changing labour market	20.8	23.2	21.6
Have completed various stages of formal education at the non-tertiary level, majority of whom are Junior Secondary School products	65.3	66.3	65.8
Have completed Senior Secondary School but are unable to continue their education or get formal employment because they are deficient in three critical subjects, namely English, mathematics and science.	2.3	5.2	4.7
Have graduated from the Universities and Polytechnics majority of whom are first time job seekers without the right work experience and are not therefore able to get work after completing their national service.	1.6	0.6	1.2
Live, sleep and work on the streets and others.	2.8	2.2	2.5
Total	100	100	100
Sample Size	524,028	378,437	903,437

Source: Amankrah 2012, pg 4

Table 5 Hopes and Aspirations of the Unemployed Youth in Ghana, 2001

Proportion of Unemployed Youth...	Male	Female	Total
Desiring to work but unable to get work because they don't have the right work experience but at the same time not getting the opportunities to improve their chances of gainful employment	41.7	22.5	33.7
Desiring to set up their own enterprises but unable to do so because they lack capital, space, and also due to competition of indigenous value added products from imports	30.5	50.3	38.5
Desiring to better their grades to continue their education and to seek for formal sector jobs	9.9	6.2	8.3
Desiring skills training and retraining, apprenticeship, or job attachment programs to enhance chances of getting paid or self-employment	16.3	19.1	17.4
Desiring to travel overseas to seek employment	0.7	0.4	0.7
Desiring reintegration into family or married life to get settled	0.4	1.2	0.9
With other hopes and aspirations	0.5	0.3	0.4

Source: Nsowah-Nuamah, N.N.N. and Amankrah J.Y. (2003).

Table 6 List of public training institutions by government association

Ministry	Number and Type of Institution
Ministry of Education	37 Technical Institutes
Ministry of Employment and Social Welfare	38 Vocational Training 3 Opportunity Industrialization Centres (OICs) 9 Leadership Training 9 Social Welfare Centres, Voc 75 Integrated Community Centers for Employable Skills (ICCES)
Ministry of Trade and Industry	9 Technical and Vocational Training
Ministry of Agriculture	3 Agricultural Training
Ministry of Road and Transport	1 Technical Training
Ministry of Local Government	26 Community Development Centres (CDC)
Ministry of Tourism	Hospitality Schools
Ministry of Communications	ICT Schools
Ministry of Youth and Sports	11 Leadership Training Centres

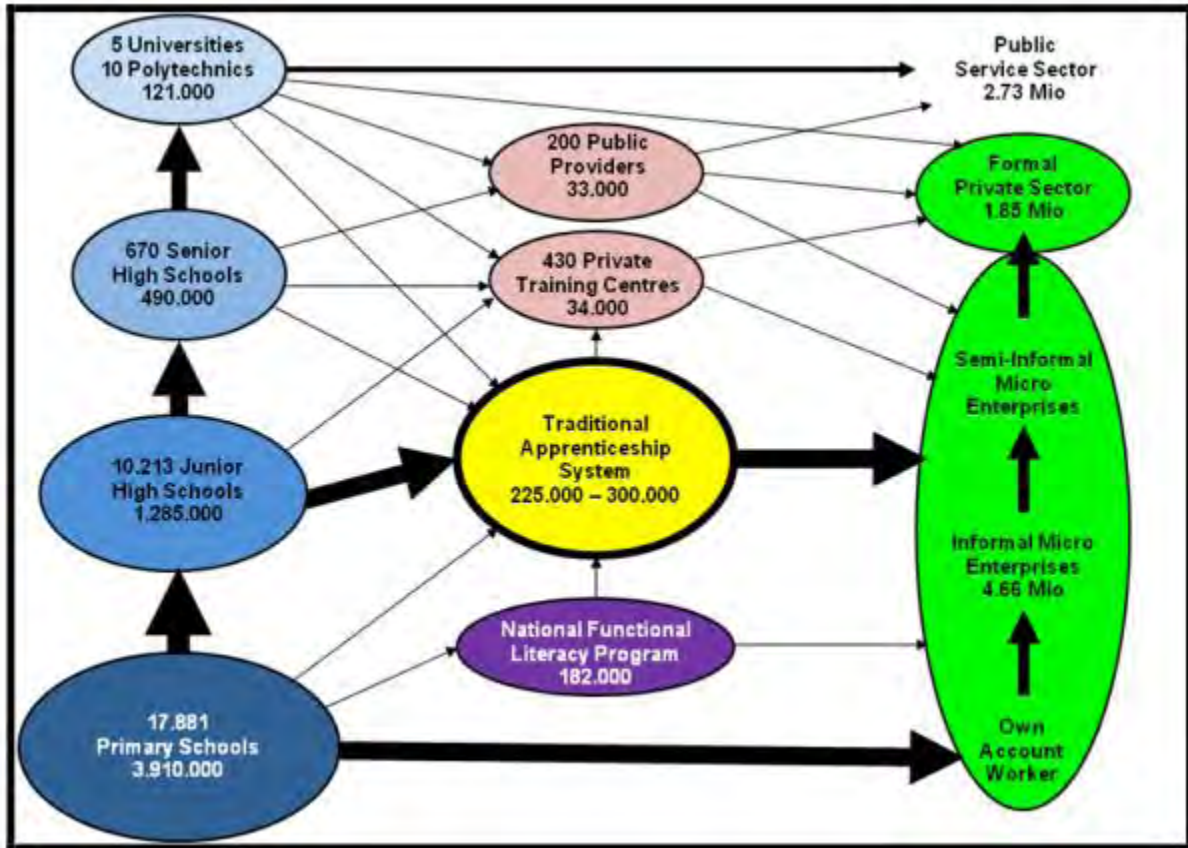
Source: Baffour-Anuah and Thompson (2011)

Table 7 Trends in Education Expenditure by Education Levels

Sources	2006		2007		2008		2009		2010	
	GH¢	%	GH¢	%	GH¢	%	GH¢	%	GH¢	%
Pre-school	37,144,800	3.9	42,797,283	3.4	65,901,027	3.8	60,272,779	3.1	72,036,051	2.8
Primary	262,627,200	27.6	445,933,605	35.0	613,661,054	35.2	594,950,694	30.5	715,160,506	27.9
JHS	159,921,600	16.8	206,990,933	16.3	292,419,320	16.8	297,665,072	15.3	370,235,825	14.4
SHS	150,382,800	15.8	160,788,917	12.6	171,058,251	9.8	337,369,027	17.3	400,030,646	15.6
TVET	8,599,900	0.9	8,236,942	0.6	18,311,207	1.1	35,038,819	1.8	38,436,313	1.5
SPED	3,835,600	0.4	3,894,322	0.3	10,662,566	0.6	7,493,238	0.4	17,214,633	0.7
NFED	6,736,900	0.7	5,709,015	0.4	6,327,284	0.4	3,715,031	0.2	13,357,023	0.5
Teacher Education	33,119,000	3.5	33,132,980	2.6	55,274,368	3.2	50,377,753	2.6	62,056,093	2.4
Tertiary	214,564,500	22.5	292,931,474	23.0	378,615,134	21.7	401,191,936	20.6	511,806,744	20.0
Mgt. & Subvtd	73,438,400	7.7	70,339,643	5.5	130,011,299	7.5	160,837,566	8.2	362,459,208	14.1
HIV - AIDS	2,474,300	0.3	2,784,370	0.2	1330209	0.1	856,499	-	1,570,316	0.1
Total	952,845,000	100	1,273,539,485	100	1,743,571,719	100	1,949,768,414	100	2,564,363,357	100

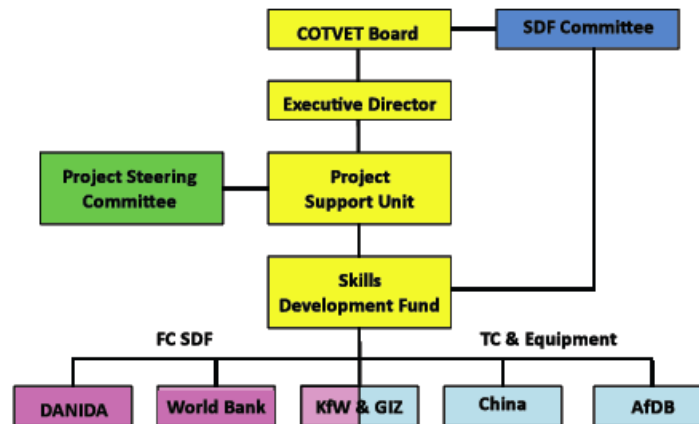
Source: Baffour-Anuah and Thompson (2011) pg. 18

Figure 1 Distribution of students by level of education and labor sector



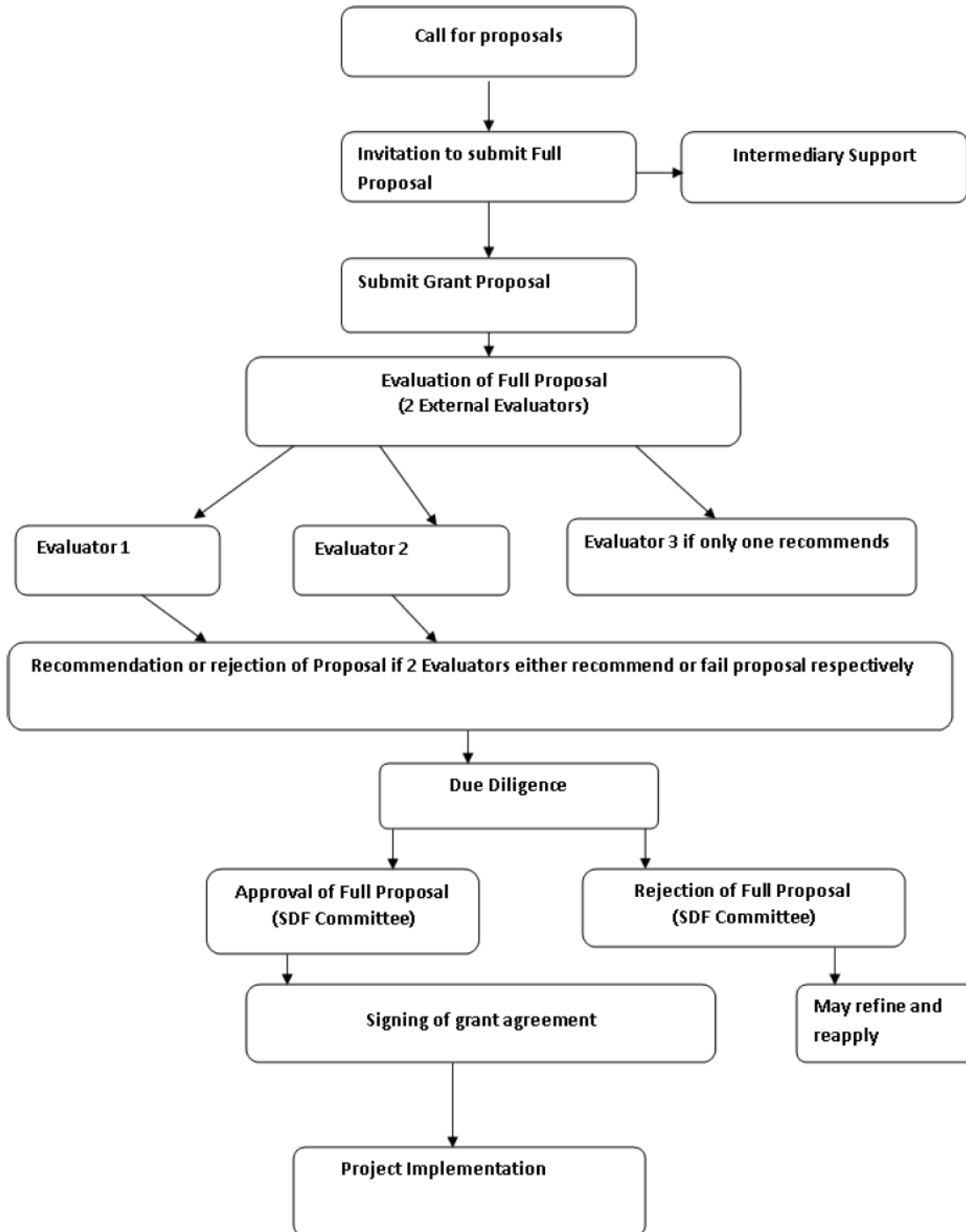
Source: Baffour-Annuab and Thompson (2011)

Figure 2 Structure of SDF



Source: Baffour Annuab 2011, p.33

Figure 3 Current SDF Grant Process



Source: http://www.sdfghana.org/new/reports/SDF_GRANT_FLOWCHART.pdf, accessed on Jan 9, 2013.

Figure 4 Parties Interviewed in Case Studies

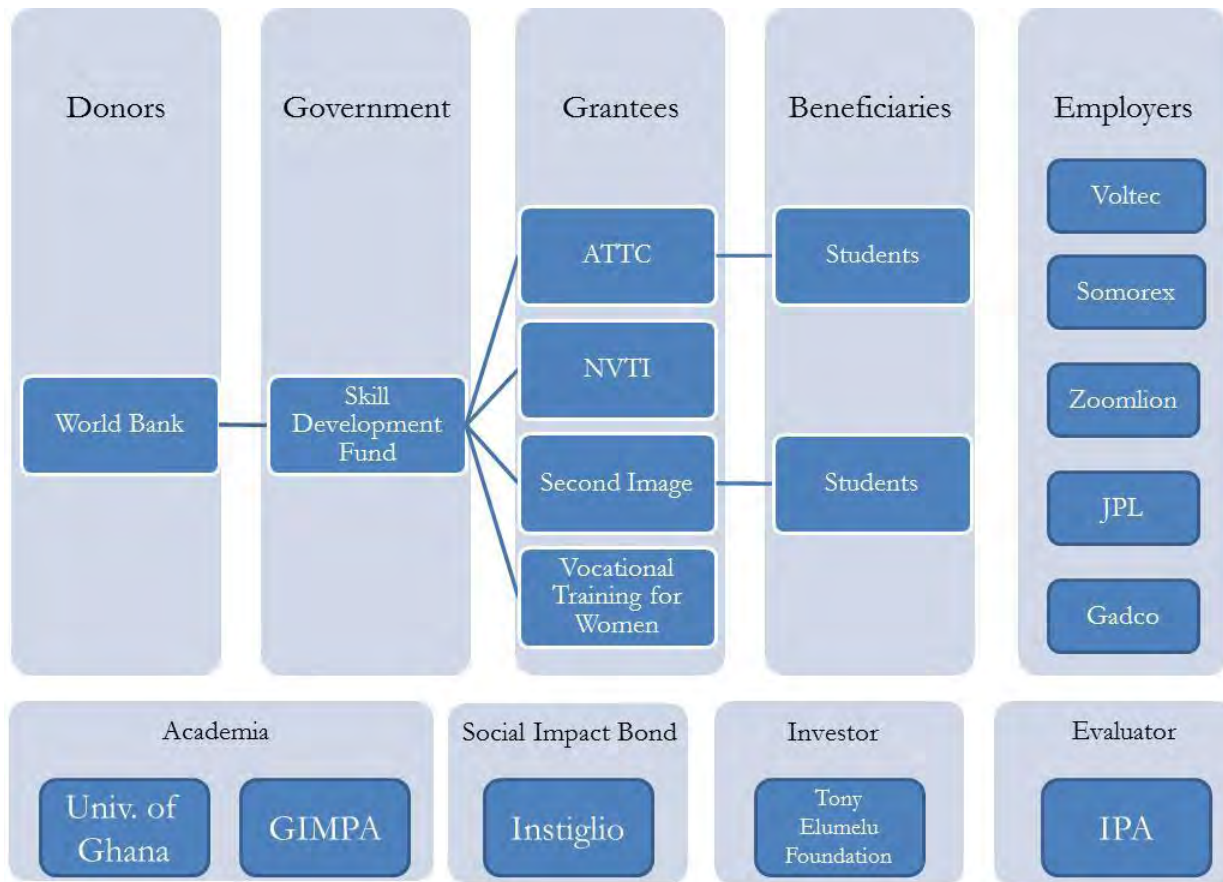
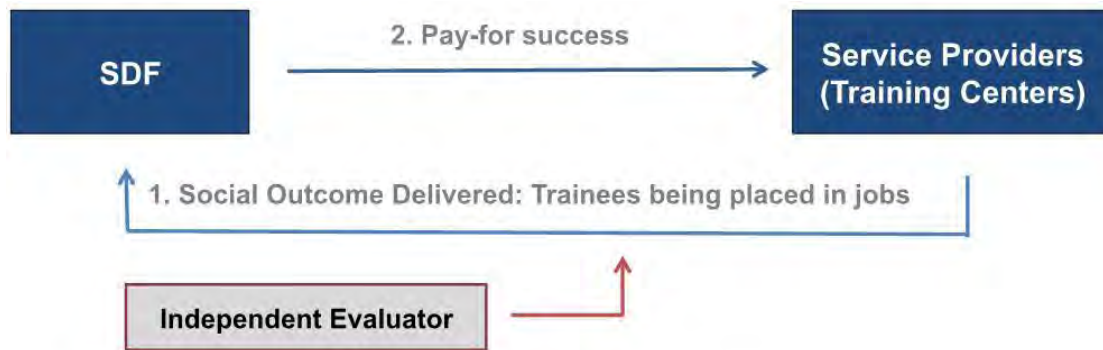


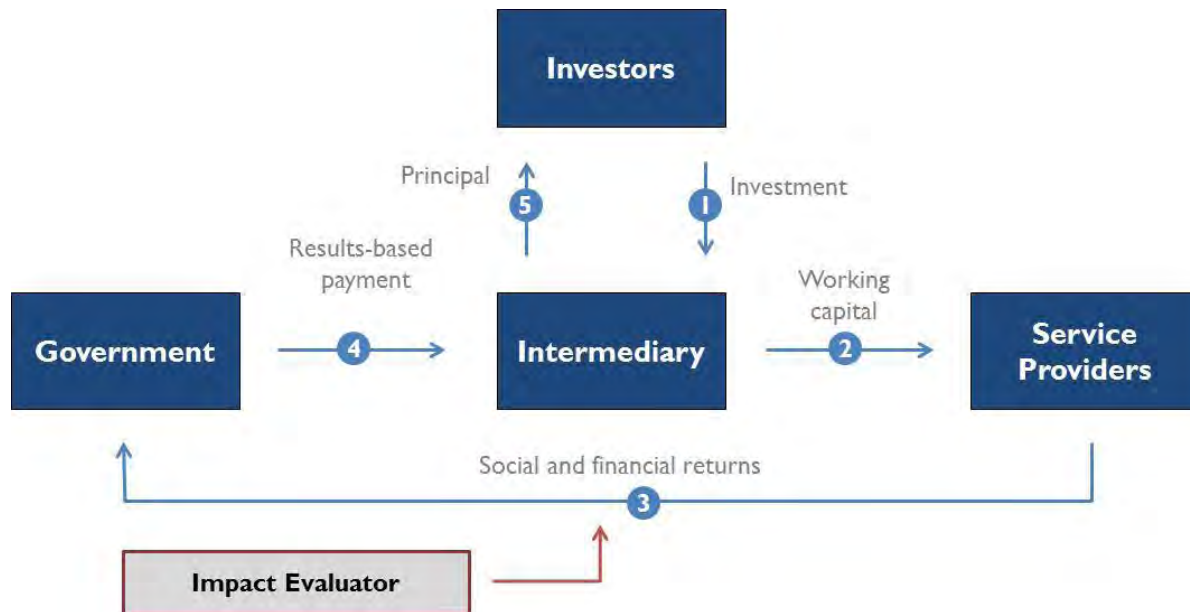
Figure 5 Plain Vanilla Pay for Success Model



Pay-for-success contracting: Impact first, money second

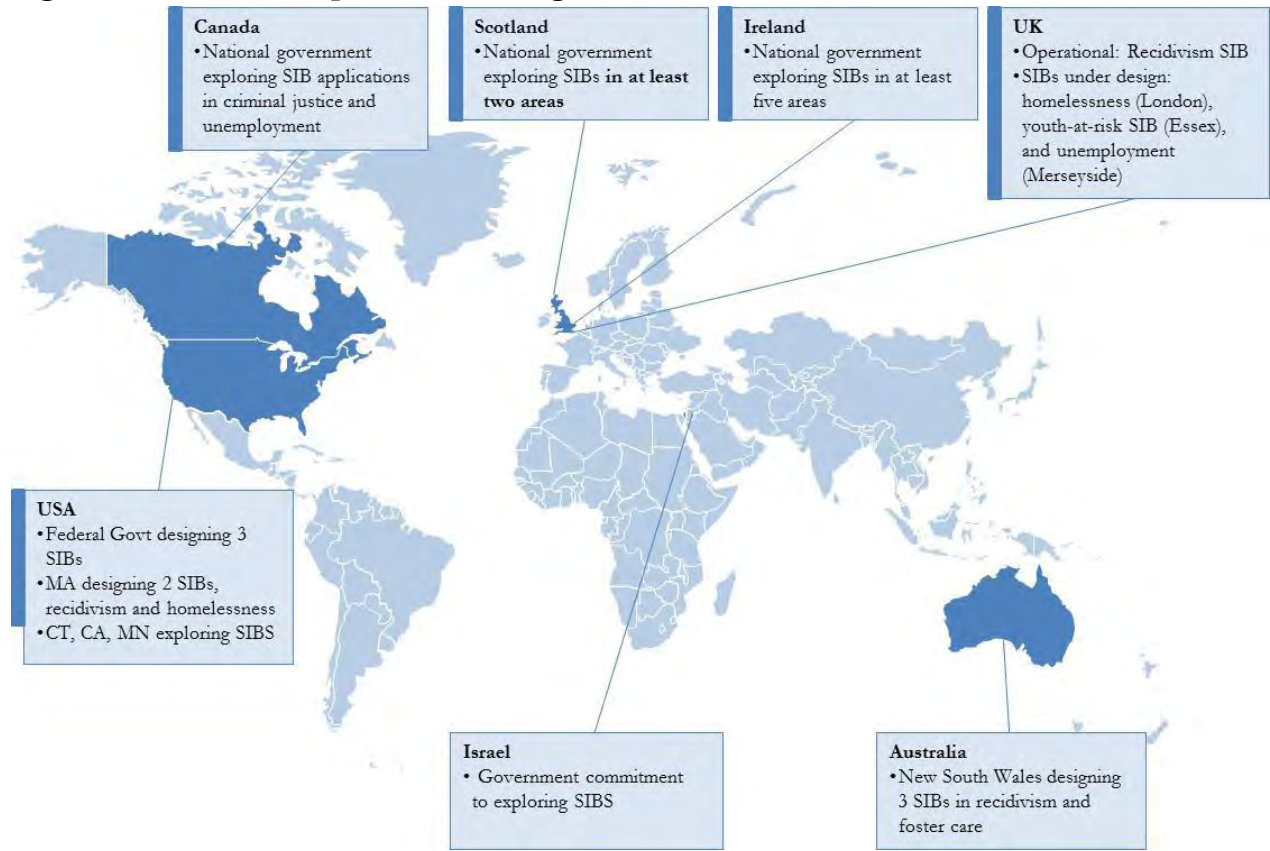
Source: Instiglio (2013). Presentation to the World Bank on Jan 16, 2013, p.7

Figure 6 Social Impact Bond Model



Source: Instiglio (2013). Presentation to the World Bank, Jan 16, 2013, p.3

Figure 7 Social Impact Bond in High-Income Countries



Source: Instiglio (2013). Presentation to the World Bank, Jan 16, 2013, p.4